

1. Requirement Statement: Research and Development will be performed to investigate the use of spatial data sets and distributed modeling approaches to improve river and flash flood forecasts.

2. Description

Elements of Distributed Modeling Research	Justification for Project		
	Service Benefit	Science Need	Other
<p>Finer spatial and temporal scale modeling for RFC and Flash Flood Applications</p> <p>Elements:</p> <ol style="list-style-type: none"> 1. MIT study 2. Muskingum Cunge Operation. 3. BLUO2, etc study 4. Gridded models 5. Reform. SAC 6. Soils-based SAC Parameters 7. MAPX-MAP Comparisons 8. Calibration strategies 9. Research Modeling System (HL-RMS) 10. DMIP 11. Other as needed 	<p>Multiple requests from RFCs:</p> <ol style="list-style-type: none"> 1. ABRFC: need for finer scale modeling 2. CBRFC: need for finer scale modeling 3. WGRFC: need for hourly time scale modeling on the Guadelup River. 4. MARFC: need for rainfall/run off model for fast responding basins. 5. NWRFC: Interest in aspects of basin sub-division and precipitation other than NEXRAD (ie, model output) Memo dtd. 12/14/2000 to G. Carter. 6. NCRFC: Request for distributed modeling approaches for the Red River basins. 7. MBRFC: need for finer scale modeling approaches for basins such as the Marais Des Cygnes. 8. CNRFC: need for finer scale modeling given the high res. Rain gage network. 9. General need for improved Flash Flood model: Deliver Better Products and Services Increase the accuracy and timeliness of NWS warnings , SPIG, page 23. 	<ol style="list-style-type: none"> 1. How to take full advantage of NEXRAD and other spatial data sets and distributed models to improve RFC and flash flood forecasts? 	<ol style="list-style-type: none"> 1. NWS Strategic Goal to improve accuracy and lead time of hydrological forecasts NWS Vision 2005, page 13. 2. Multiple SPIG Goals for FY 2001-2005 for distributed models: pages 62-66 3. DMIP: Multiyear, international project sponsored by NWS/OHD/HL. 4. AHPS funded \$45 K for distributed modeling 5. Need to address finding by NRC: Limited work is under way to ...develop and evaluate operationally topography-based or distributed flood forecasting procedures , in Toward a New National Weather Service: Assessment of Hydrologic and Hydrometeorological Operations and Services , National Weather Service Modernization Committee, Commission on Engineering and Technical Systems, National Research Council, 1996, pp 34-40.

3. Person Requesting: Mike Smith, Research Hydrologist, 301-713-0640 extension 128 (michael.smith@noaa.gov)